

3-6 Reteaching

Parallel and Perpendicular Lines

Nonvertical lines are parallel if they have the same slope and different y -intercepts. The graphs of $y = 2x - 6$ and $y = 2x + 3$ are parallel because they have the same slope, 2, but different y -intercepts, -6 and 3 .

Problem

What is an equation in slope-intercept form of the line that passes through $(8, 7)$ and is parallel to the graph of $y = \frac{3}{4}x + 2$?

The slope of $y = \frac{3}{4}x + 2$ is $\frac{3}{4}$. Because the desired equation is for a line parallel to a line with slope $\frac{3}{4}$, the slope of the parallel line must also be $\frac{3}{4}$. Use the slope and the given point in the point-slope form of a linear equation and then solve for y to write the equation in slope-intercept form.

$y - y_1 = m(x - x_1)$	Start with the point-slope form
$y - 7 = \frac{3}{4}(x - 8)$	Substitute $(8, 7)$ for (x_1, y_1) and $\frac{3}{4}$ for m .
$y - 7 = \frac{3}{4}x - 6$	Distributive Property
$y = \frac{3}{4}x + 1$	Add 7 to each side.

The graph of $y = \frac{3}{4}x + 1$ passes through $(8, 7)$ and is parallel to the graph of $y = \frac{3}{4}x + 2$

Parallel lines Worksheet

Determine whether the graphs of the equations are parallel lines.

1. $x + 4 = y$ and $y - x = -3$

7. $3x - y = -9$ and $2y - 6x = -2$

2. $3x - 4 = y$ and $y - 3x = 8$

8. $y - 6 = -6x$ and $-2x + y = 5$

3. $y + 3 = 6x$ and $-6x - y = 2$

9. $-3x + y = 4$ and $3x - y = -6$

4. $y = -4x + 2$ and $-5 = -2y + 8x$

10. $-4 = y + 2x$ and $6x + 3y = 4$

5. $y = 2x + 7$ and $5y + 10x = 20$

11. $8x - 4y = 16$ and $5y - 10x = 3$

6. $y = -7x - 5$ and $2y = -7x - 10$

12. $-4x = 3y + 5$ and $8x + 6y = -1$

Parallel lines Worksheet

Write an equation for the line containing the given point and parallel to the given line. Graph both lines on another sheet.

13. (0,6); $y - 3x = 4$

17. (-3, 2); $x - y = 5$

14. (-2, 4); $y = 2x - 3$

18. (-1, -1); $2y + 4x = 8$

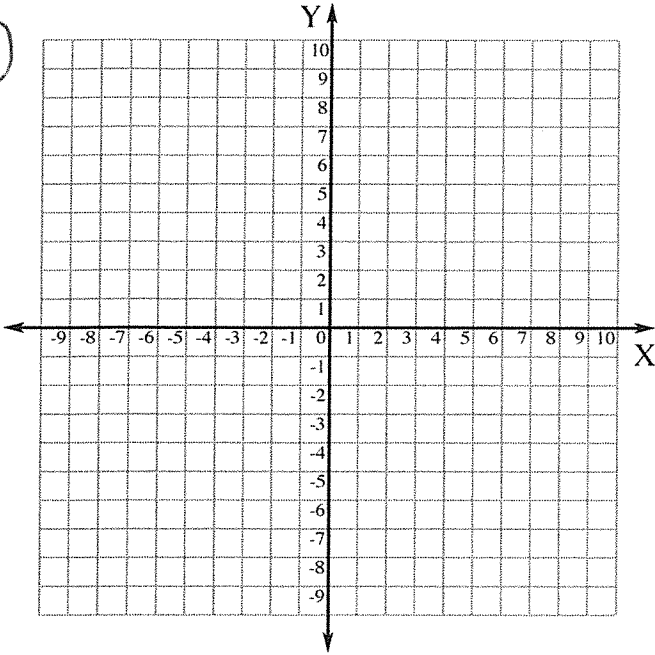
15. (0, 2); $3y - x = 0$

19. (0, 0); $2x - y = 6$

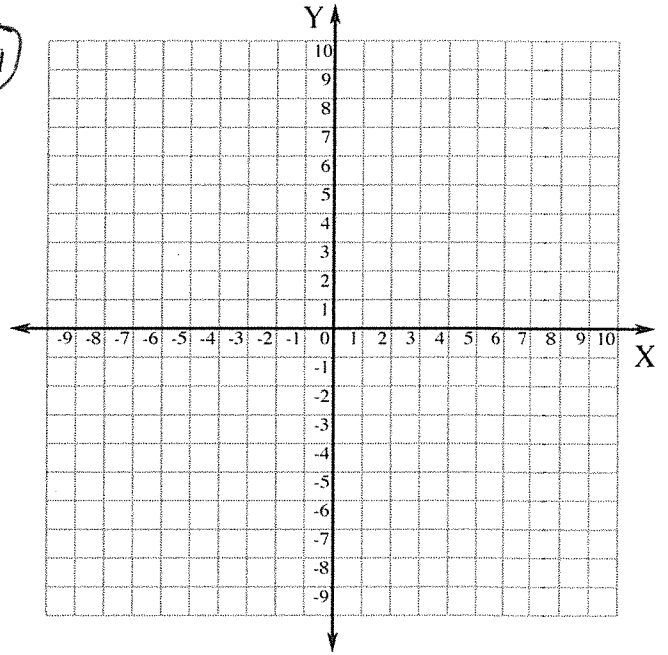
16. (1, 0); $2x + y = -4$

20. (-4, 5); $3x - 2y = 6$

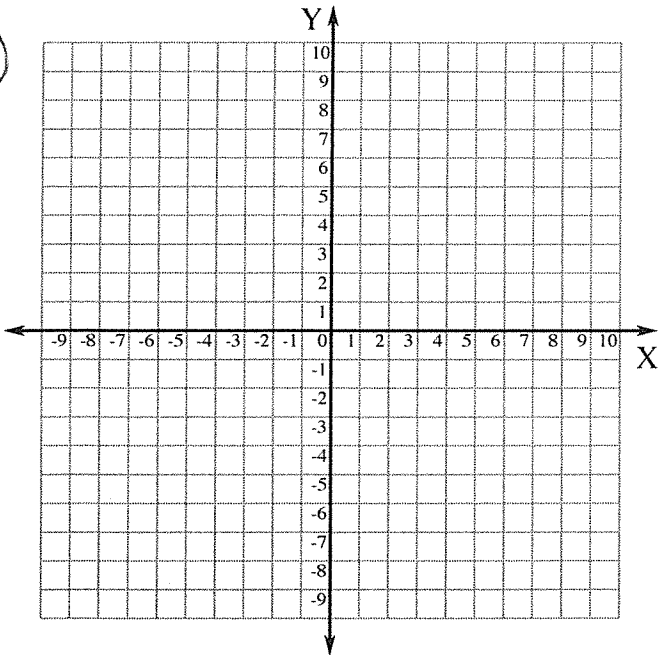
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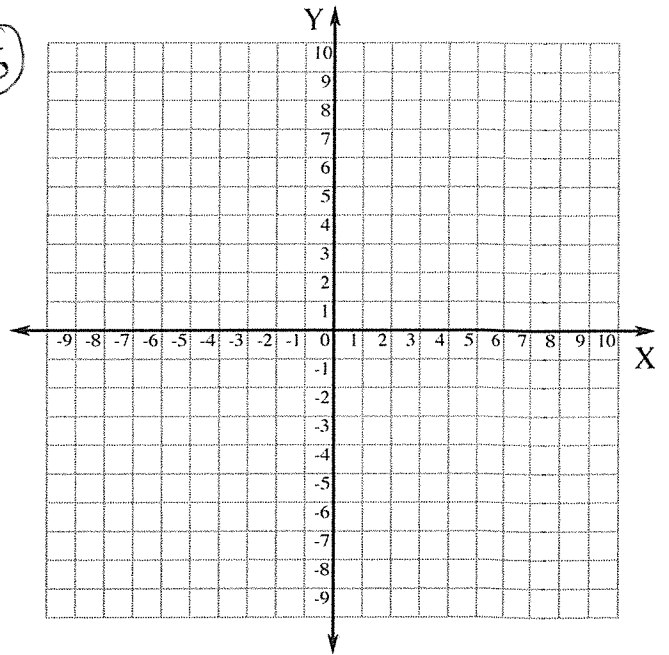
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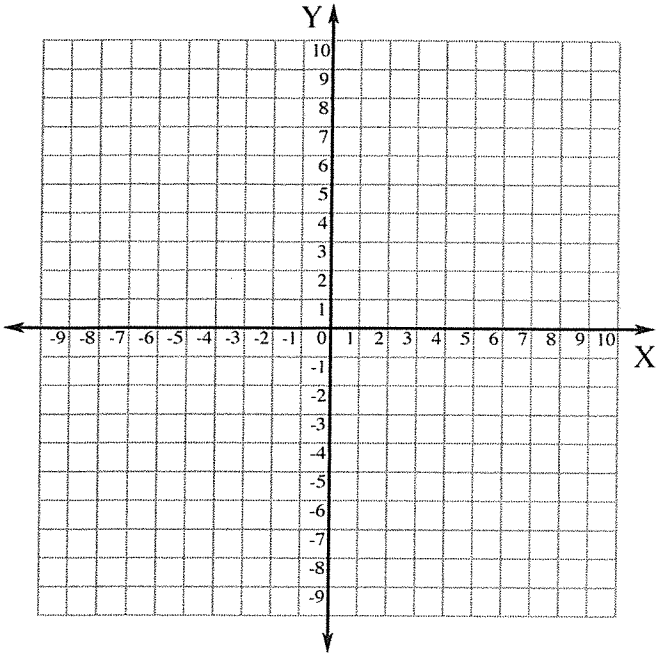
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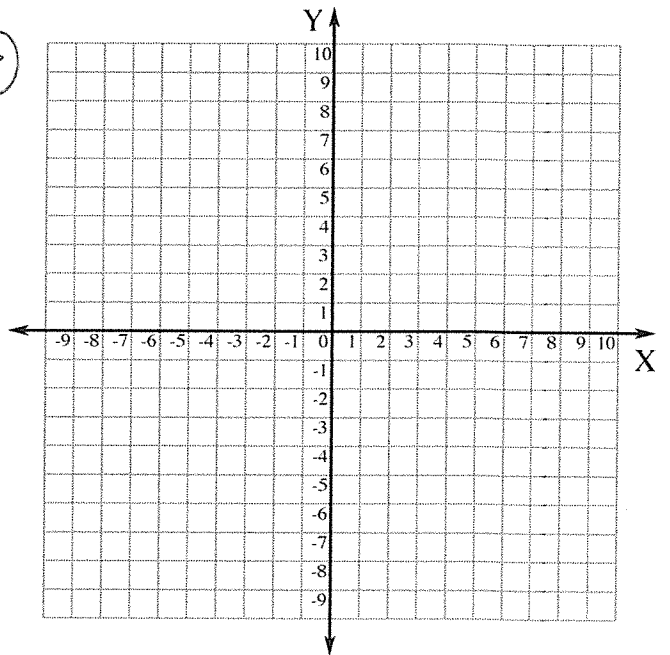
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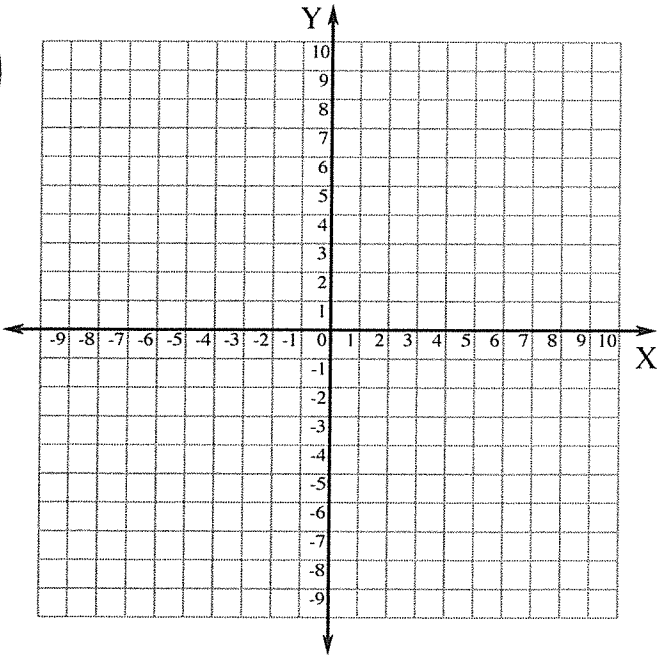
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